Magnitude of Change in Energy Balance and Duration of Lactational Amenorrhea among Toba Women of Northern Argentina

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Abstract:
Ovarian function is not an all or nothing event triggered by a threshold value of energy availability, but rather falls along a continuum that reflects the optimum allocation of energy to the processes of growth, maintenance, and reproduction. The metabolic load hypothesis views individual variation in the length of postpartum subfecundity as a difference in the relative cost of lactation for women with different energy balances. Under this framework, we predicted that women with different lengths of lactational amenorrhea would show different patterns of changes in body mass index (BMI) during the postpartum period. Monthly BMI data was collected from 70 lactating Toba women, and monthly urine samples were assayed for c-peptide and estrogen and progesterone metabolites. Women who resumed menses early (3-6 month), intermediate (7-11 months), and late (12-18 months) were grouped separately and the percent changes in BMI from month to month were calculated for each group. Results indicate that women with a short duration of lactational amenhorrea tend to show a steeper increase in BMI one month prior to the resumption of menstration (a chance of 2.6% in one month) than women with long periods of lactational amenhorrhea, who show a slow rate of increase for several months before the return to menses (an average of 0.88% during the 5 months prior to resumption). Thus, the return to postpartum fecundity seems to respond not only to a change in energy balance but also to the magnitude of that change over time.